

[54] CONTROL OF CROSSLINKING REACTION RATE USING ORGANOZIRCONATE CHELATE CROSSLINKING AGENT AND ALDEHYDE RETARDING AGENT

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[58] Field of Search 166/308; 252/8.55 R, 252/315.3, 8.551

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[57] ABSTRACT

An aqueous gel containing a crosslinking agent comprising an organozirconate chelate and a rate retarding agent which delays crosslinking of the gel or a rate accelerating agent which accelerates crosslinking of the gel. The retarding agent comprises a selected aldehyde or dialdehyde. The accelerating agent comprises a member selected from a group of polyamines. In the preferred embodiment, the crosslinking agent and crosslinking rate retarder or accelerator are injected simultaneously, yet independently, into an aqueous gel while introducing the gel into a subterranean formation sought to be fractured. The viscosity of the gel increases over a period of time which is controllable by altering the quantity of rate retarding agent or accelerating agent delivered in conjunction with a fixed concentration of crosslinking agent.

10 Claims, 6 Drawing Figures

